

SCIENTIFIC DATA SYSTEMS

# ANNOUNCING...

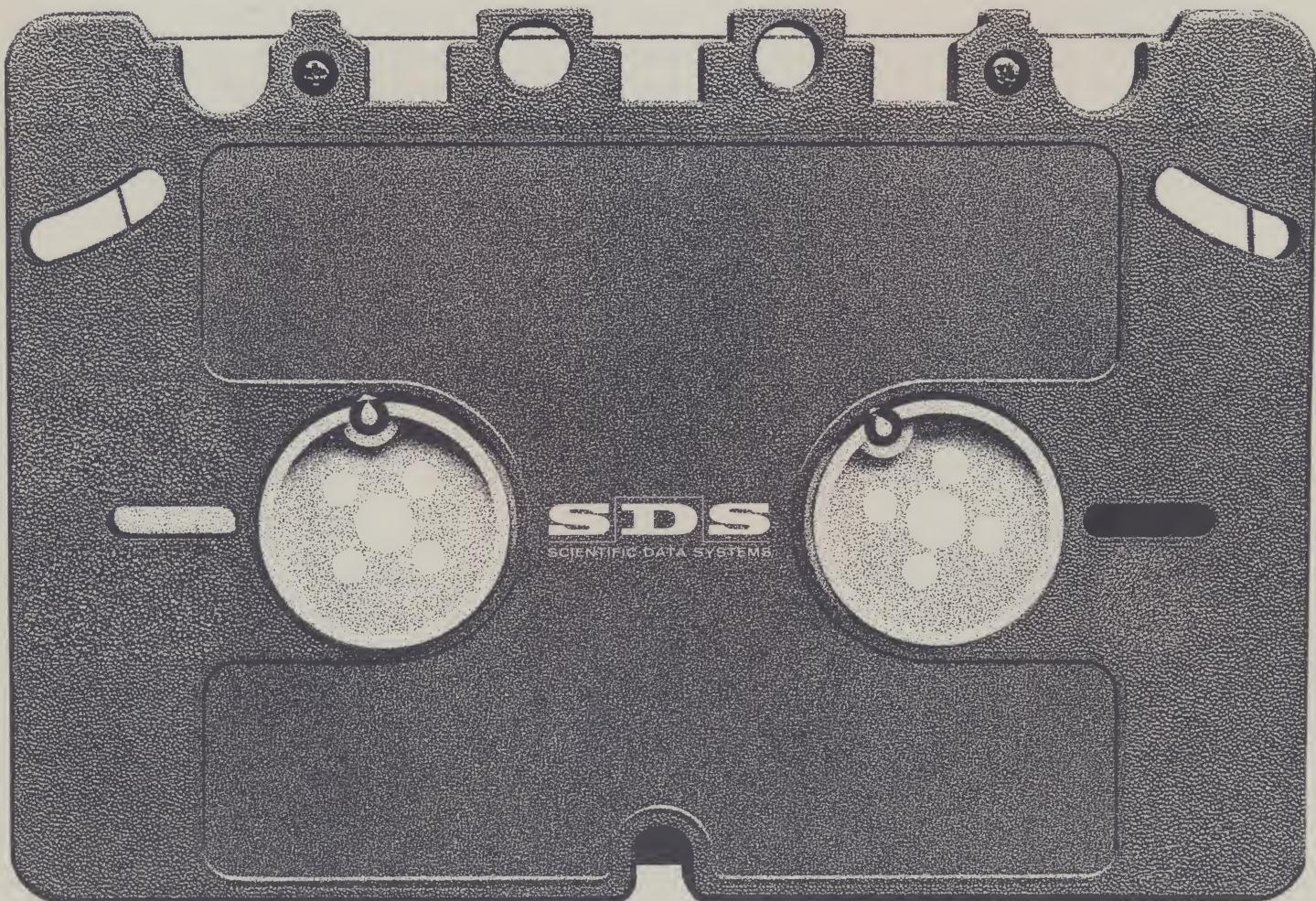
# SDS

# 900

# SERIES

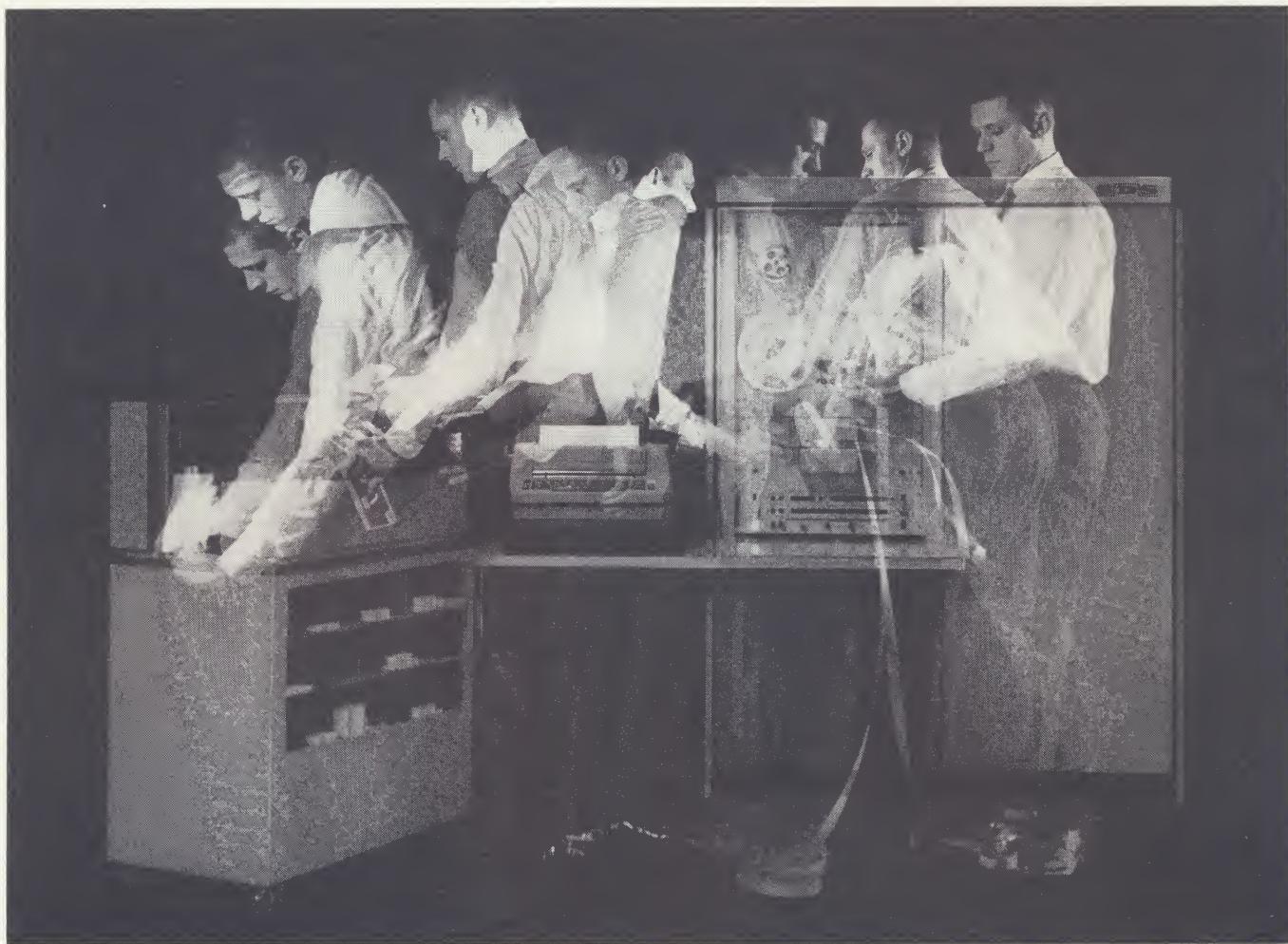
# MAGPAK

Unless digital equipment costs are of no consequence to you and your firm, this folder contains a major announcement.



Actual size of tape cartridge

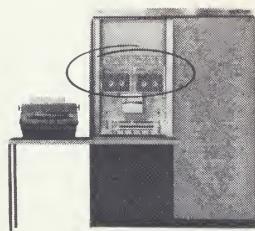
# SDS MAGPAK TAKES THE GRIEF OUT



## BEFORE MAGPAK

To assemble a program

1. Mount paper tape and load assembler.
2. Run source program cards.
3. Rerun cards with source program.
4. Punch out object code.
5. Rewind paper tape.
6. Load object program.
7. Load tape subroutines.
8. Load data.
9. Execute the program.



Magpak is a magnetic tape system developed by Scientific Data Systems specifically to fit SDS 900 Series software. It takes seven inconvenient, time consuming, error-causing steps out of small computer operation. With Magpak, budget-limited computer users can have large computer convenience and efficiency at half the cost.

SDS Magpak, a compact, low cost, automatic programming oriented magnetic tape system, is available with all SDS 900 Series Computers. It has the functional capability of four SDS standard IBM-compatible magnetic tape units at a fraction of the cost. Magpak consists of two

independently controlled magnetic tape drives mounted on a 10½" by 19" panel that fits any standard SDS 900 Series Computer rack. Each tape drive holds a self-contained, dual track, magnetic tape cartridge with a total capacity of more than 4 million characters. All Magpak controls and programming functions are identical to the controls and functions of standard SDS high-speed IBM-compatible tape units. Any program written for these standard units can be run on Magpak.

### Magpak system costs

A typical SDS Magpak system, including an SDS 910 computer with a 4,096-word memory, card reader, typewriter and a comprehensive software package (FORTRAN II, SYMBOL Assembly System, METASYMBOL and MONARCH Monitor Routine plus a complete library of subroutines and utility programs) costs only \$81,000 (\$2,350 per month on lease). A competitive system with comparable convenience and

# OF SMALL COMPUTER OPERATION



## WITH MAGPAK

To assemble a program

1. Load single card deck containing source program and data.

2. Execute the program.

performance costs twice as much, yet operates up to ten times slower.

### Magpak convenience saves money

In addition to its low original cost, Magpak greatly reduces operating costs. Most small, scientific/engineering computers are used on an open shop basis. They are generally operated by high salaried technical personnel with only moderate computer usage skills. This results in lost time and operating errors. With Magpak, both the time required to operate the computer and the opportunities for human error are greatly reduced. And the easy to carry, easy to store, easy to mount Magpak tape cartridges eliminate the wear, tear and sequencing problems

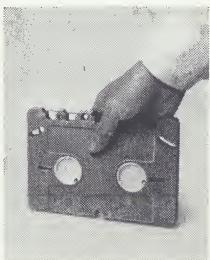
inherent to paper tapes and cards. With Magpak, you simply load a punched card source program and execute your problem in a manner identical to operating a large, expensive computer system.

### For more information

If you would like additional information about SDS 900 Series Magpak systems, contact your nearest SDS sales and service office, or write on your letterhead for our Magpak Data Bulletin.

**SDS 900 SERIES/MAGPAK**  
SCIENTIFIC DATA SYSTEMS 1649 Seventeenth Street, Santa Monica, Calif.

Sales offices in New York, Boston, Washington, Philadelphia, Huntsville, Orlando, Chicago, Houston, San Francisco. Foreign representatives: Instronics, Ltd., Stittsville, Ontario; CECIS, Paris; F. Kanematsu, Tokyo; RACAL, Sydney.



# SDS MAGPAK

Scientific Data Systems' Magpak provides the small computer user with the operational convenience of large, expensive computer systems. Built for reliability, and programming and operating ease, Magpak lets the small computer user operate a complete library of automatic compilers and assemblers with a minimum of manual operations. In order to provide a convenient, but inexpensive, means of handling source information, SDS is also introducing a new low cost card reader (Model 9153). With Magpak and the new card reader, both of which will be available in the Fall of 1964, the computer operator need only concern himself with easy-to-load cartridges and easy-to-handle source decks of cards.

Magpak is intended for use with all SDS computers: the SDS 910, SDS 920, SDS 930 and SDS 9300. It consists of two independent tape drives, each of which controls a standard stereo tape cartridge holding approximately 600 feet of mylar base tape. With two independent information tracks on each tape, a single Magpak provides a total of four independent information channels. Each of these channels has a capacity of approximately 1.5 million IBM characters (6-bits plus a parity bit). Because of the space required for inter-record gaps and file marks, the useful capacity is slightly less. Information is recorded in each channel using a single channel read-after-write head and self-clocking techniques. The information transfer rate is in excess of 1,000 standard characters per second.

The basic Magpak, Model 9445, requires 10½" of a standard 19" relay rack space plus mounting space for the control electronics. A second Magpak unit, Model 9446, operates in conjunction with the Model 9445 and shares the same control electronics. The two units provide a total of eight information channels and up to 12 million characters of storage.

Two drives are required in order to permit tapes to be reproduced and to minimize the number of times the tape must be moved. The requirement for four independent information tracks follows from the requirements of automatic program systems. The four tracks are organized as follows:

1. Library (write protected)
2. Temporary Storage
3. Object Programs
4. Source Programs and Data, or Answers

## CONTROLS AND INSTRUCTIONS

Magpak provides all of the operation functions of standard SDS high-performance IBM compatible tape units and uses the identical set of instructions. As a result, programs written for Magpak and those written for standard magnetic tape units are *identical*. Binary or decimal format may be used. A read-after-write check is performed on all writing operations. Searching can occur in both the forward and reverse directions. Record keys can be examined without stopping the tape. End-of-file records may be detected in either the forward or reverse directions. File Protect is provided independently for each channel. The following instructions are used to control Magpak:

Mnemonic	Description
TRT x	Tape Ready Test; skip if tape unit is not ready
FPT x	File-Protect Test; skip if tape unit not file-protected
BTT x	Beginning of Tape Test; skip if tape unit not beginning of tape
ETT x	End of Tape Test; skip if tape unit not at end of tape
DT2 x	Density Test 200; skip if tape unit not at 200 bpi density
DT5 x	Density Test 556; skip if tape unit not at 556 bpi density
TFT x	Tape End-of-File Test; skip if not end-of-file
TGT x	Tape Gap Test; skip if not gap
WTB x	Write Tape in Binary
WTD x	Write Tape in Decimal
ET x	Erase Tape
ETR x	Erase Tape Reverse
RTB x	Read Tape in Binary
RTD x	Read Tape in Decimal
SFB x	Scan Forward in Binary
SRB x	Scan Reverse in Binary
SFD x	Scan Forward in Decimal
SRD x	Scan Reverse in Decimal
REW x	Rewind Tape
RTS x	Convert Read to Scan
SRR x	Skip Remainder of Record

In executing the DT2 x or DT5 x instructions, Magpak responds as if it operates at 200 bpi density.

## LEASE AND PURCHASE PRICE SCHEDULE

Model Number	Item	Purchase Price	Basic Monthly Lease Price
910M	General Purpose Computer with 2048 words of core memory and 300 characters/second Paper Tape Reader, MAGPAK, Input/Output Typewriter	\$62,000	\$1,800.00
910M	General Purpose Computer with 4096 words of core memory and 300 characters/second Paper Tape Reader, MAGPAK, Input/Output Typewriter	77,000	2,250.00
910M	General Purpose Computer with 8192 words of core memory and 300 characters/second Paper Tape Reader, MAGPAK, Input/Output Typewriter	92,000	2,750.00
920M	General Purpose Computer with 4096 words of core memory and 300 characters/second Paper Tape Reader, MAGPAK, Input/Output Typewriter	93,000	2,750.00
920M	General Purpose Computer with 8192 words of core memory and 300 characters/second Paper Tape Reader, MAGPAK, Input/Output Typewriter	108,000	3,250.00
9445	MAGPAK	15,000	400.00
9446	MAGPAK to be used in conjunction with Model 9445	6,500	150.00
9153	100 cards/minute Card Reader	4,000	100.00